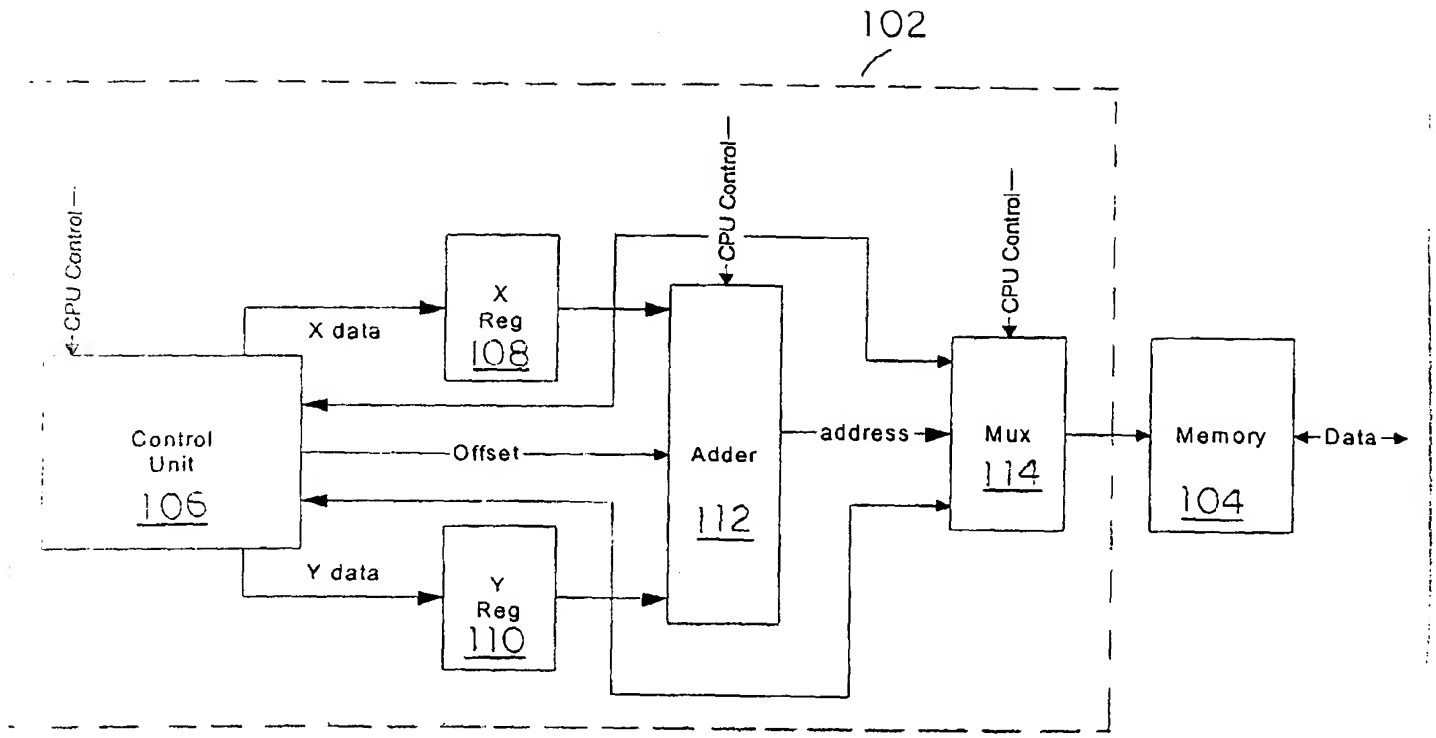
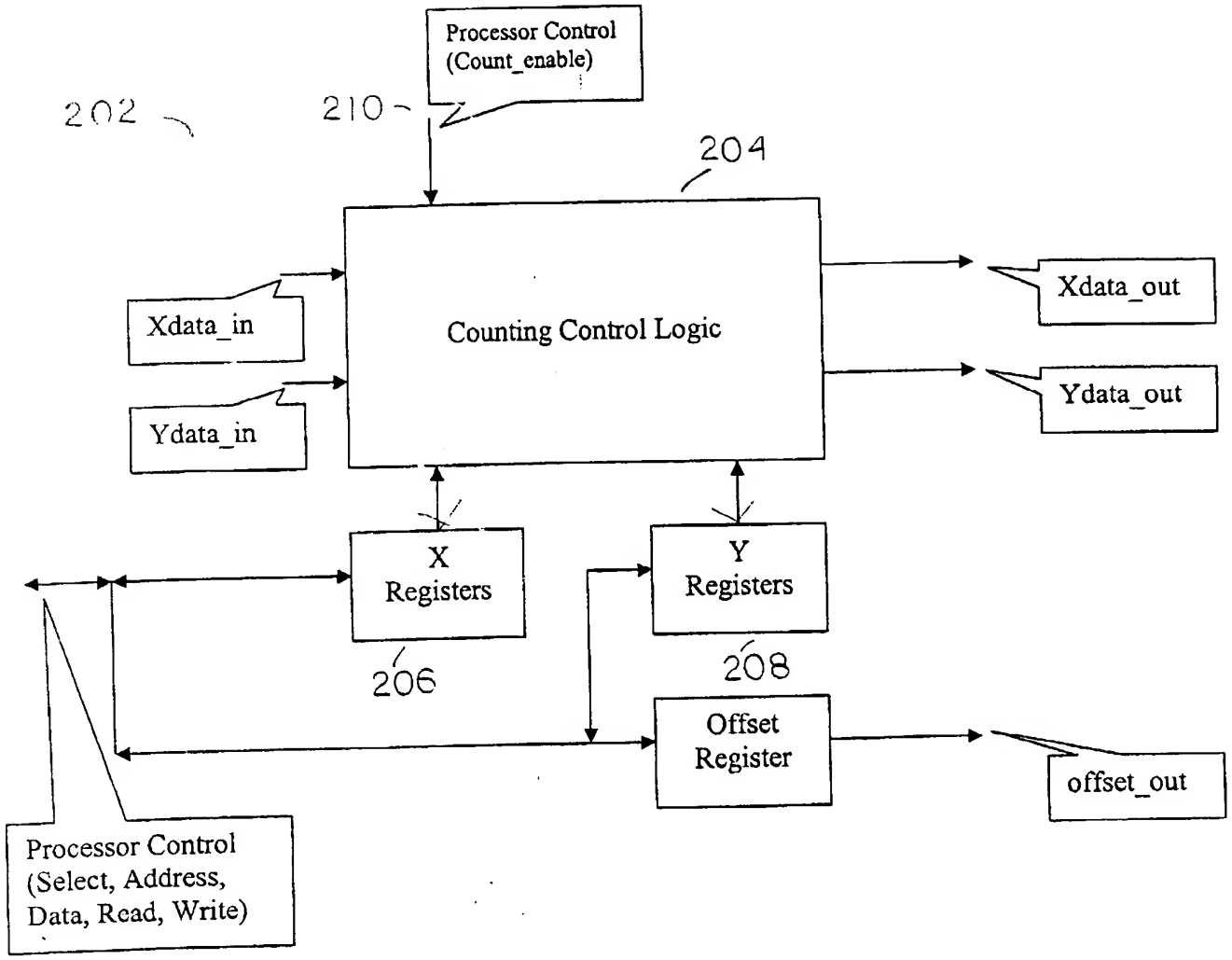
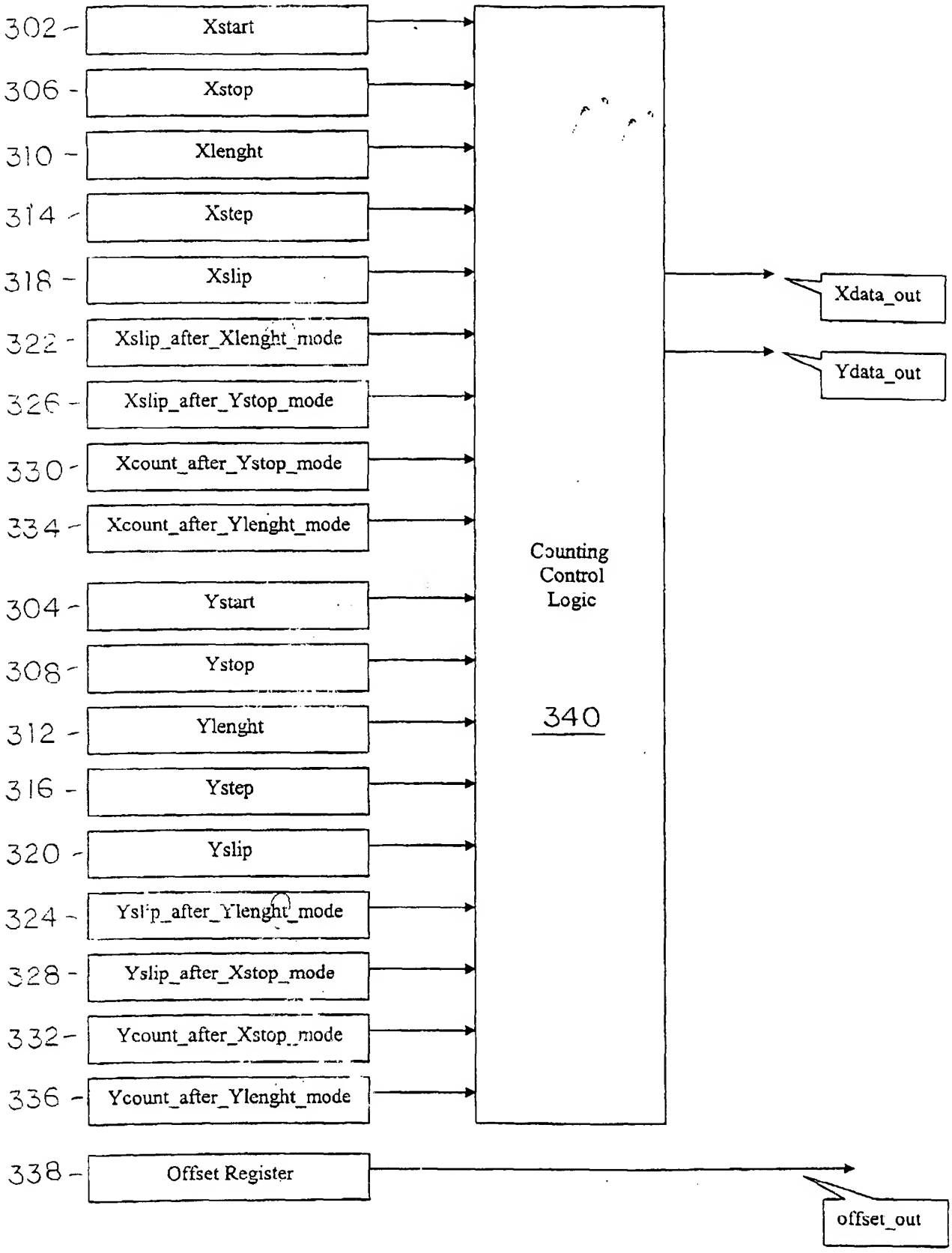

102
CPU Control
CPU Control
CPU Control
X data
X Reg 108
Control Unit 106
Offset
Adder 112
address
Mux 114
Memory 104
Data
Y data
Y Reg 110
100

FIG. 1


Processor Control
(Count_enable)
202
210
204
Xdata_in
Ydata_in
Counting Control Logic
Xdata_out
Ydata_out
X
Registers
206
Y
Registers
208
Offset
Register
offset_out
Processor Control
(Select, Address,
Data, Read, Write)

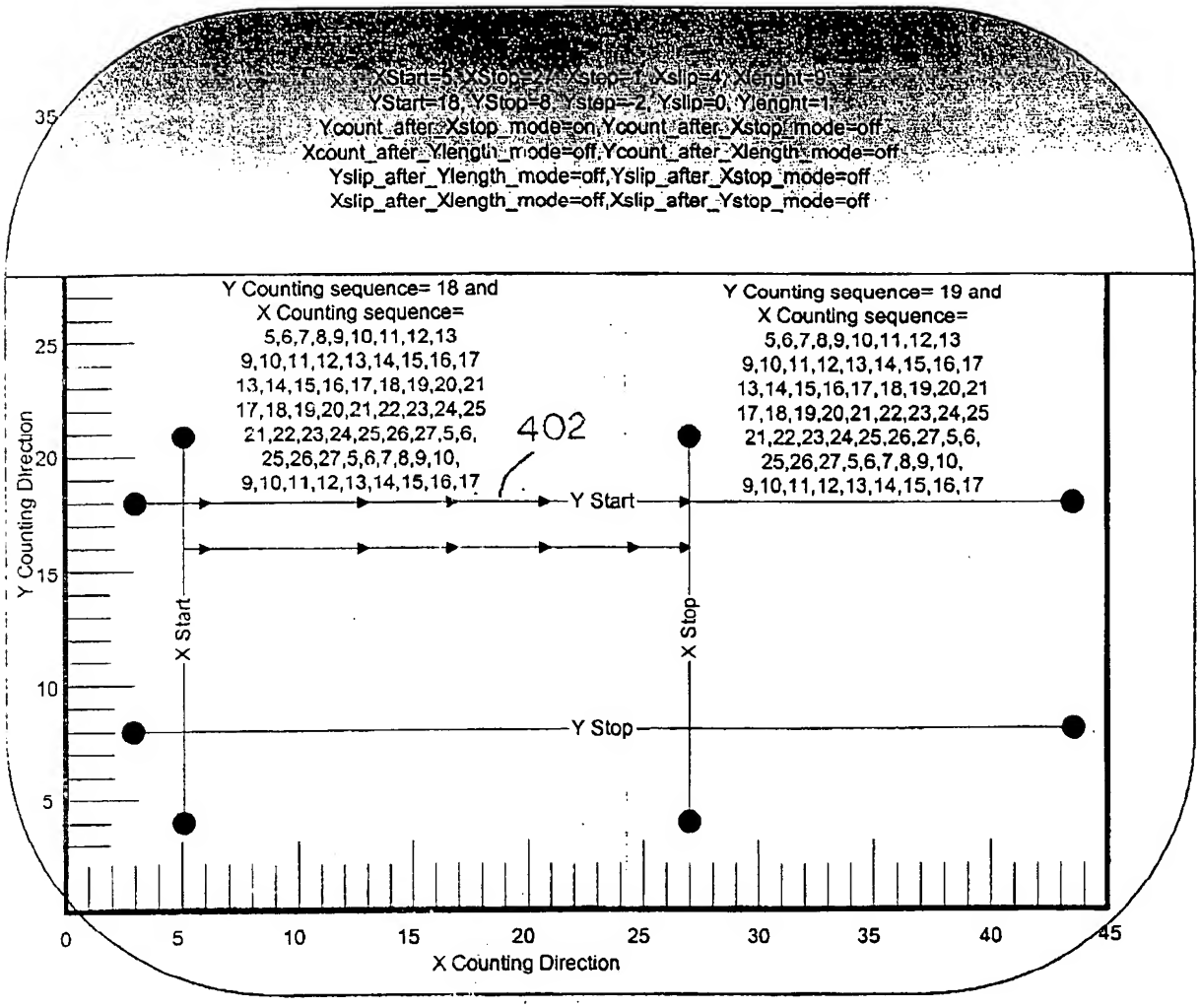
200

FIG. 2


302
Xstart
306
Xstop
310
Xlenght
314
Xstep
318
Xslip
322
Xslip_after_Xlenght_mode
326
Xslip_after_Ystop_mode
330
Xcount_after_Ystop_mode
334
Xcount_after_Ylenght_mode
304
Ystart
308
Ystop
312
Ylenght
316
Ystep
320
Yslip
324
Yslip_after_Ylenght_mode
328
Yslip_after_Xstop_mode
332
Ycount_after_Xstop_mode
336
Ycount_after_Ylenght_mode
338
Offset Register
Counting Control Logic
340
Xdata_out
Ydata_out
offset_out

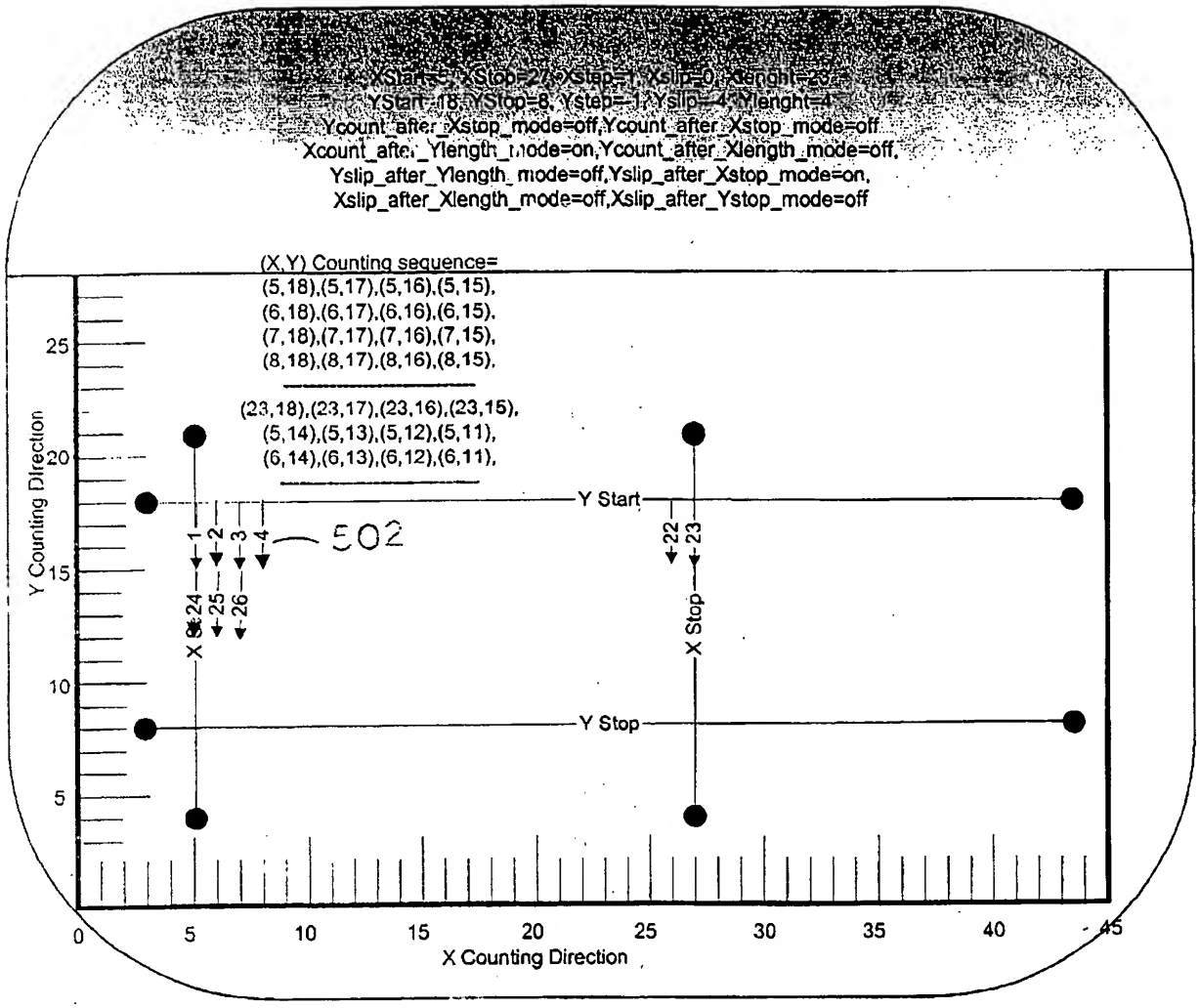
300

FIG. 3


XStart=5,XStop=27,Xstep=1,Xslip=4,Xlenght=9,
YStart=18, YStop=8, Ystep=-2, Yslip=0, Ylenght=1,
Ycount_after_Xstop_mode=on,Ycount_after_Xstop_mode=off,
Xcount_after_Ylength_mode=off,Ycount_after_Xlength_mode=off,
Yslip_after_Ylength_mode=off,Yslip_after_Xstop_mode=off,
Xslip_after_Xlength_mode=off,Xslip_after_Ystop_mode=off
Y Counting sequence= 18 and
X Counting sequence=
5,6,7,8,9,10,11,12,13
9,10,11,12,13,14,15,16,17
13,14,15,16,17,18,19,20,21
17,18,19,20,21,22,23,24,25
21,22,23,24,25,26,27,5,6,
25,26,27,5,6,7,8,9,10,
9,10,11,12,13,14,15,16,17
Y Counting sequence= 19 and
X Counting sequence=
5,6,7,8,9,10,11,12,13
9,10,11,12,13,14,15,16,17
13,14,15,16,17,18,19,20,21
17,18,19,20,21,22,23,24,25
21,22,23,24,25,26,27,5,6,
25,26,27,5,6,7,8,9,10,
9,10,11,12,13,14,15,16,17
402
Y Start
Y Stop
X Start
X Stop
Y Counting Direction
X Counting Direction
0
5
10
15
20
25
30
35
40
45

400

FIG. 4


Xstart=5, Xstop=27, Xstep=1, Xslip=0, Xlenght=23
Ystart=18, Ystop=8, Ystep=-1, Yslip=-4, Ylenght=4
Ycount_after_Xstop_mode=off,Ycount_after_Xstop_mode=off,
Xcount_after_Ylength_mode=on,Ycount_after_Xlength_mode=off,
Yslip_after_Ylength_mode=off,Yslip_after_Xstop_mode=on,
Xslip_after_Xlength_mode=off,Xslip_after_Ystop_mode=off
(X,Y) Counting sequence=
(5,18),(5,17),(5,16),(5,15),
(6,18),(6,17),(6,16),(6,15),
(7,18),(7,17),(7,16),(7,15),
(8,18),(8,17),(8,16),(8,15),
(23,18),(23,17),(23,16),(23,15),
(5,14),(5,13),(5,12),(5,11),
(6,14),(6,13),(6,12),(6,11),
Y Start
Y Stop
X Start
X Stop
502
Y Counting Direction
X Counting Direction
0
5
10
15
20
25
30
35
40
45

500

FIG 5

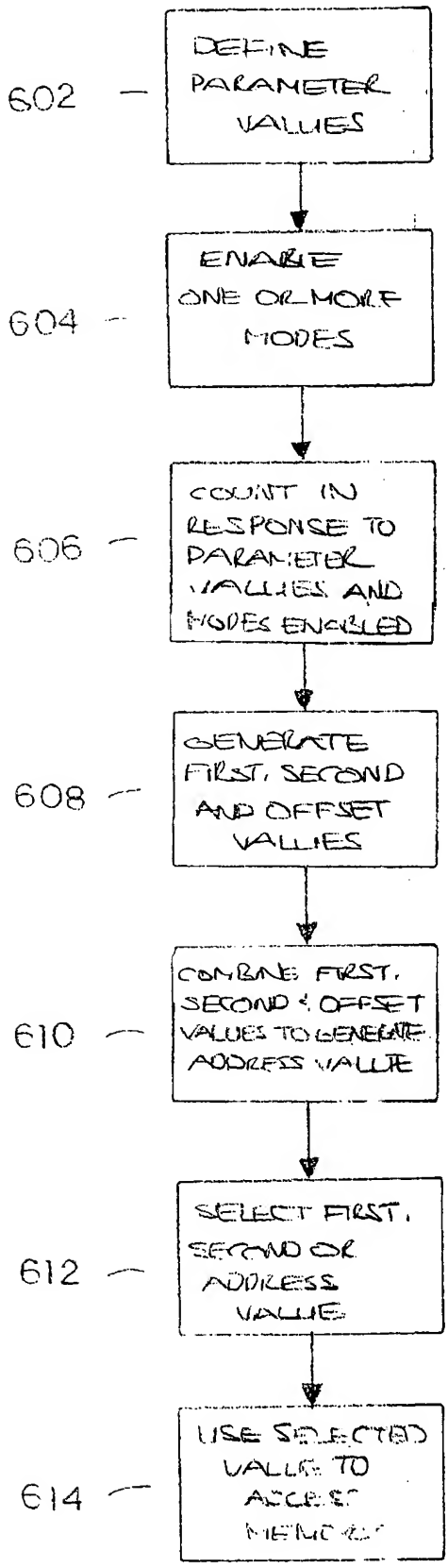

602
DEFINE PARAMETER VALUES
604
ENABLE ONE OR MORE MODES
606
COUNT IN RESPONSE TO PARAMETER VALUES AND MODES ENABLED
608
GENERATE FIRST, SECOND AND OFFSET VALUES
610
COMBINE FIRST, SECOND & OFFSET VALUES TO GENERATE ADDRESS VALUE
612
SELECT FIRST, SECOND OR ADDRESS VALUE
614
USE SELECTED VALUE TO ACCESS MEMORY
600

FIG 6